

**METHOD AND SYSTEM FOR IMPLEMENTING EXTERNAL  
APPLICATIONS USING REMOTE SOCKET APPLICATION  
PROGRAMMING INTERFACE FOR VIRTUAL ROUTERS**

**ABSTRACT OF THE DISCLOSURE**

A routing device is disclosed. The routing device includes an operating system kernel, a virtual router residing external to the operating system kernel, a router manager configured to manage the virtual router, an application residing external to the virtual router, and a number of physical interfaces. The application is able to selectively interact with the virtual router and the operating system kernel on a dynamic basis in order to have the virtual router and the operating system kernel perform a number of tasks for the application. The virtual router further includes a routing protocol stack configured to handle a number of routing protocols, a number of interface drivers configured to communicate with corresponding physical interfaces, an Internet Protocol (IP) stack configured to interact with the routing protocol stack and perform a forwarding function via the interface drivers, the IP stack having a forwarding information table, information from which is used to perform the forwarding function; and a socket layer having a corresponding socket application programming interface, the socket layer configured to facilitate interactions between the IP stack and one or more socket applications, such as, the routing protocol stack and other external applications. The remote socket application programming interface is used to facilitate communications with the socket layer. The IP stack of the virtual router resides external to the operating system kernel. The operating system kernel further includes an associated socket layer, the socket layer having a corresponding socket application programming interface. The application is able to communicate with the operating system kernel via the associated socket layer using the corresponding socket application programming interface to have the operating system kernel perform one or more tasks.

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